

Claims

We claim:

1. A roller cradle for use in a modular conveying assembly having a direction of travel in which an object is conveyed, said cradle comprising:

a first half including a first hinge element;

a second half formed separately from said first half and including a second hinge

5 element spaced from said first hinge element and defining a space therebetween; and

a roller retained in said space.

2. The roller cradle as in claim 1, in which a shaft extends between said first and second halves through said space, and said shaft retains said roller in said space.

3. The roller cradle as in claim 1, in which said shaft is aligned in a direction selected from a group consisting of the direction of travel, transverse to the direction of travel, and at an acute angle between the direction of travel and transverse to the direction of travel.

4. The roller cradle as in claim 2, in which said shaft extends through said roller to rotatably mount said roller in said space.

5. The roller cradle as in claim 2, in which each of said hinge elements include a shaft aperture that receives one end of said shaft.

6. The roller cradle as in claim 2, in which said shaft is formed from two shaft halves, and each shaft half has a semicircular cross section.

7. The roller cradle as in claim 2, in which said shaft extends between said first and second hinge elements through said space.

8. The roller cradle as in claim 1, including a first cradle side wall having first and second ends, said first end being joined to one of said hinge elements, and said second end extending toward the other of said hinge elements.

9. The roller cradle as in claim 8, in which said second end abuts an end of said other of said hinge elements.

10. The roller cradle as in claim 8, in which said second end interlocks with said other of said hinge elements.

11. The roller cradle as in claim 8, including a second cradle side wall having a first end and a second end, said first end of said second cradle side wall being joined to said other of said hinge elements, and said second end of said second cradle side wall extending toward said one of said hinge element to frame said space between said hinge elements.

12. The roller cradle as in claim 11, in which a shaft extends through said space between said first and second side walls, and said shaft retains said roller in said space.

13. The roller cradle as in claim 8, in which said first cradle side wall and said one of said hinge elements are formed as an integral piece.

14. The roller cradle as in claim 1, in which at least one of said hinge elements includes more than one meshing eye.

15. The roller cradle as in claim 1, in which at least a portion of said roller extends at least one of above said cradle and below said cradle.

16. The roller cradle as in claim 1, in which said roller has a shape selected from a group consisting of spherical and cylindrical.

17. A modular conveying assembly for conveying an object in a direction of travel, said assembly comprising:

a plurality of chain modules assembled in an edge to edge relation to form a continuous belt;

5 at least one hinge pin joining adjacent chain modules, and pivotally connecting the adjacent modules in the direction of belt travel;

at least one cradle adjacent at least one of said modules is retained by said at least one pin, said cradle having an upper edge and a lower edge

a roller supported by said cradle and extending beyond at least one of said edges.

18. The modular conveying assembly as in claim 17, in which said cradle includes:

a first half including a first hinge element; and

a second half formed separately from said first half and including a second hinge element spaced from said first hinge element and defining a space therebetween.

19. The modular conveying assembly as in claim 18, in which a shaft extends between said first and second halves through said space, and said shaft retains said roller in said space.

20. The modular conveying assembly as in claim 19, in which said shaft is aligned in a direction selected from a group consisting of the direction of conveyor travel, transverse to the direction of conveyor travel, and at an acute angle between the direction of conveyor travel and transverse to the direction of conveyor travel.

21. The modular conveying assembly as in claim 19, in which said shaft extends through said roller to rotatably mount said roller in said space.

22. The modular conveying assembly as in claim 19, in which each of said hinge elements include a shaft aperture that receives one end of said shaft.

23. The modular conveying assembly as in claim 19, in which said shaft is formed from two shaft halves, and each shaft half has a semicircular cross section.

24. The modular conveying assembly as in claim 19, in which said shaft extends between said first and second hinge elements through said space.

25. The modular conveying assembly as in claim 18, including a first cradle side wall having first and second ends, said first end being joined to one of said hinge elements, and said second end extending toward the other of said hinge elements.

26. The modular conveying assembly as in claim 25, in which said second end abuts an end of said other of said hinge elements.

27. The modular conveying assembly as in claim 25, in which said second end interlocks with said other of said hinge elements.

28. The modular conveying assembly as in claim 25, including a second cradle side wall having a first end and a second end, said first end of said second cradle side wall being joined to said other of said hinge elements, and said second end of said second cradle side wall extending toward said one of said hinge element to frame said space between said hinge
5 elements.

29. The modular conveying assembly as in claim 28, in which a shaft extends through said space between said first and second side walls, and said shaft retains said roller in said space.

30. The modular conveying assembly as in claim 25, in which said first cradle side wall and said one of said hinge elements are formed as an integral piece.

31. The modular conveying assembly as in claim 18, in which at least one of said hinge elements includes more than one meshing eye.

32. The modular conveying assembly as in claim 17, in which at least a portion of said roller extends at least one of above said cradle and below said cradle.

33. The modular conveying assembly as in claim 17, in which said roller has a shape selected from a group consisting of spherical and cylindrical.